



### Homework 2 Thinking ahead

1. (a) Using the headings given, specify the inputs, outputs and precondition for the following problem:

Given a list of integers, return a list containing every number divisible by 7.  
[4]

**Name:**

**Inputs:**

**Outputs:**

**Precondition:**

- (b) Write a pseudocode algorithm for this function, and a main program which calls the function and outputs the resulting list. [4]

- (c) Give **two** different lists that you could use to test two aspects of this program, and the expected output. [4]

2. (a) Explain what is meant by **caching**, and give an example of when it might be used. [3]



(b) Explain **one** benefit and **one** drawback of caching.

[2]

3. List **three** benefits of creating reusable program components when working on a large project. [3]

[Total 20 marks]